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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1

of 16

Complete If Known

Application Number	10/592,913
Filing Date	November 13, 2006
First Named Inventor	Jan Wendelin Stark
Art Unit	1796
Examiner Name	Bijan Ahvazi
Attorney Docket Number	796/76794

U. S. PATENT DOCUMENTS				
Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
		Number/Kind Code ² (If Known)		
1	US-	2005-02227864	10-13-2005	Sutorik et al.
2	US-	2004-0050207	03-18-2004	Woolridge et al.
3	US-	7,211,236	05-01-2007	Stark et al.
4	US-	4,659,617	04-21-1987	Fuji et al.
5	US-	2004-0126298	07-01-2004	Stark et al.
6	US-	2006-0229197	10-12-2006	Stark et al.
7	US-	5,395,606	03-07-1995	Xiao et al.
8	US-	6,013,318	01-11-2000	Hunt et al.
9	US-	4,772,736	09-20-1988	Edwards et al.
10	US-	5,514,822	05-07-1996	Scott et al.
11	US-	5,989,514	11-23-1999	Bi et al.
12	US-	6,030,914	02-29-2000	Matsui
13	US-	4,501,823	02-26-1985	Masuda
14	US-	6,887,566	05-03-2005	Hung et al.
15	US-	7,220,398	05-22-2007	Sutorik et al.
	US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ³ /Number ⁴ "Kind Code ⁵ (If Known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	
					1	2
16	EP	1142830 A1	10-10-2001	Hennig et al.		
17	EP	0803471 A2	10-29-1997	Mangold et al.		
18	WO	2001-036332	05-25-2001	Hung et al.		
19	WO	2000-027754	05-18-2000	Kumar et al.		
20	EP	0841304 A1	05-13-1998	Matsui et al.		
21	WO	2003-070640	08-26-2008	Sutorik et al.		

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Sheet	2	of	6
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NON PATENT LITERATURE DOCUMENTS

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	22	L. Madler et al. (2002) "Flame-made ceria nanoparticles", J. Mater, Res., Vol.17, No. 6, pgs. 1356-1362	
	23	A.R. DiGiampao et al. (1998) "ZrO ₂ coatings on stainless steel by aerosol thermal spraying", Advances in Tech. Materials & Mat. Processing Journal, 1(1), 90-100 (abstract)	
	24	L. Madler et al. (2002) "Bismuth Oxide Nanoparticles by Flame Spray Pyrolysis", J. Am. Ceram. Soc., Vol. 85, No. 7, pgs. 1713-1718	
	25	S.T. Aruna et al. (1998) "Combustion Synthesis and Properties of Nanostructured Ceria-Zirconia Solid Solutions", Nanostructured Materials, Vol. 10, No. 6, pgs. 995-964	
	26	U.S. Patent Appln. Serial No. 10/592,913 filed November 13, 2006 and presently being examined in GAU 1796	
	27	Madler et al. (Feb. 2002) "Controlled synthesis of nanostructured particles by flame spray pyrolysis" Journal of Aerosol Science, Vol. 33, pgs. 369-389	
	28	Pratsinis, Sotiris E. (1998) "Flame Aerosol Synthesis of Ceramic Powders," Prog. Energy Combust. Sci. Vol. 24, pp. 197-219	
	29	Sholchi Fujiwara et al., Chem. Abs. Ser., Columbus, OH, US; "Preparation of superconducting YBCO thick films by spray-pyrolysis of organic acid salts" 6/13/92, XP002264388	
	30	W. J. Stark et al., (2003) Chem. Comm. "Flame synthesis of nanocrystalline ceria-zirconia: effect of carrier liquid", No. 5, 2/20/03, pgs. 588-589, XP002264387	
	31	Jarcho, M. (1981) "Calcium-Phosphate Ceramics as Hard Tissue Prosthetics." Clin. Orthopaedics and Related Research, 259-278	

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Sheet 3

of 6

Application Number	10/592,913
Filing Date	November 13, 2006
First Named Inventor	Jan Wendelin Stark
Art Unit	1796
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	32	de Groot, K. (1983) "Bioceramics of Calcium Phosphate" (ed. de Groot, K.) (CRC Press, Boca Raton)	
	33	LeGeros, R. Z. (1991) "Calcium Phosphates in Oral Biology and Medicine" (ed. LeGeros, R.Z.) (S. Karger, Basel)	
	34	Metsger, D.S. et al. (1982) "Tricalcium Phosphate Ceramic - a Resorbable Bone Implant - Review and Current Status", Journal of the Am. Dental Assoc. 105, 1035-1038	
	35	LeGeros, R. Z. et al. (1995) "Encyclopedic Handbook of Biomaterials and Bioengineering" eds. Wise, D.L., J., T.D., & E., A.D., (Marcel Dekker, New York)	
	36	Dong, Z. L. et al. (2003) "TEM and STEM analysis on heat-treated and in vitro plasma-sprayed hydroxyapatite/Ti-6A1-4V composite coatings" Biomaterials 24, 97-105	
	37	Cleries, L. et al. (1998) "Dissolution behaviour of calcium phosphate coatings obtained by laser ablation" Biomaterials 19, 1483-1487	
	38	Arias, J. L. et al. (2003) "Micro- and nano-testing of calcium phosphate coatings produced by pulsed laser deposition." Biomaterials 24, 3403-3408	
	39	Tadic, D. et al. (2002) "Continuous synthesis of amorphous carbonated apatites" Biomaterials 23, 2553-2559	
	40	Sarkar, M. R. et al. (2001) "First histological observations...a novel calcium phosphate bone substitute material in human cancellous bone" Jour. of Bio. Mat. Res. 58, 329-334	
	41	Overgaard, S. et al. (1999) "The influence of crystallinity of the hydroxyapatite coating on the fixation of implants..." Jour. of Bone & Joint Surg.-Brit. Vol. 81B, 725-731	

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1. Applicant's or patentee's disclosure. 2. Applicant's or assignee's disclosure. 3. To place a check mark here if English language Translation is attached.

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		Examiner Name	Bijan Ahvazi
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Attorney Docket Number 796/76794			

NON PATENT LITERATURE DOCUMENTS				
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	42	Knaack, D. et al. (1998) "Resorbable calcium phosphate bone substitute" Journal of Biomedical Materials Research, 43, 399-409		
	43	Stark, W. J. et al. (2002) "Flame-made titania/silica epoxidation catalysts: Toward large-scale production" Indus. & Engin. Chem. Res. 41, 4921-4927		
	44	Ravaglioli, A. & Krajewski, A. (1992) "Bioceramics: Materials, Properties, Applications" p. 432, Chapman & Hall, London		
	45	Gauthier , O. et al. (1998) "Macroporous biphasic calcium phosphate ceramics: influence of macropore diameter & macroporosity percentage on bone ingrowth" Biomat. 19, 133-139		
	46	Weiss, P. et al. (2003) "Synchrotron X-ray microtomography...provides 3-D Imaging representation of bone ingrowth in calcium phosphate biomaterials" Biomat. 24, 4591-4601		
	47	Yuan, H. P. et al. (1998) "Osteoinduction by calcium phosphate biomaterials" Journal of Materials Science-Materials in Medicine 9, 723-726		
	48	Bignon, A. et al. (2003) "Effect of micro & macroporosity of bone substitutes on their mechanical properties & cellular response" Jou. of Mat. Sci-Mat. in Med. 14, 1089-1097		
	49	Yuan, H. P. et al. (2001) "Bone formation induced by calcium...in soft tissue of dogs: a comparative study b/w porous alpha-TCP & beta-TCP" Jou of Mat. Sci-Mat in Med. 12, 7-13		
	50	Yuan, H. P. et al. (2002) "A comparison of the osteoinductive potential of 2 calcium phosph. ceramics implanted intramusc. in goats" Jou. of Mat. Sci-Mat in Med. 13, 1271-1275		
	51	Yuan, H. P. et al. (2000) "Tissue responses of calcium phosphate cement: a study in dogs" Biomaterials 21, 1283-1290		

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	52	Yuan, H. P. et al. (1999) "A preliminary study on osteoinduction of two kinds of calcium phosphate ceramics" Biomaterials 20, 1799-1806	
	53	Somrani, S. et al. (2003) "Thermal evolution of amorphous tricalcium phosphate" Journal of Materials Chemistry 13, 888-892	
	54	Peters, F. et al (2000) "The structure of bone studied with synchrotron X-ray diffraction, X-ray absorption spectorscopy and thermal analysis" Thermachimica Acta 361, 131-138	
	55	Suchanek, W. et al (2002) "Mechanochemical-hydrothermal synthesis of carbonated apatite powders at room temperature" Biomaterials 23, 699-710	
	56	Baxter, J. D. et al. (1966) "Physical State of Bone Carbonate - a Comparative Infra-Red Study in Several Mineralized Tissues" Yale Journal of Biology & Medicine 38, 456	
	57	Emerson, W. H. et al. (1962) "The Infra-Red Absorption Spectra of Carbonate in Calcified Tissues" Archives of Oral Biology 7, 671-683	
	58	Fowler, B. O. "Infrared Studies of Apatites .1. Vibrational Assignment for Calcium, Strontium & Barium Hydroxyapatites Utilizing Isotopic Substitution" Inorg.Chem. 13, 194-207	
	59	Jillavenkatesa, A. et al. (1998) "The infrared & Raman spectra of beta and alpha-tricalcium phosphate (Ca-3(PO4)(2))" Spectroscopy Letters 31, 1619-1634	
	60	Dorozhkin, S. V. et al. (2002) "Biological & medical significance of calcium phosphates" Angewandte Chemie-International Edition 41, 3130-3146	
	61	Daculsi, G. et al (1997) "International Review of Cytology- a Survey of Cell Biology" Vol 172, 129-191, ACADEMIC PRESS INC, San Diego	

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	62	Fulmer, M. T. et al. (2002) "Measurements of solubilities and dissolution rates of several hydroxyapatites" <i>Biomaterials</i> 23, 751-755	
	63	Nelson, D. G. A. (1981) "The Influence of Carbonate on the Atomic-Structure and Reactivity of Hydroxyapatite" <i>Journal of Dental Research</i> 60, 1621-1629	
	64	Cornilsen, B. C. et al. (1979) "Vibrational-Spectra of Beta-Ca ₂ p ₂ o ₇ and Gamma-Ca ₂ p ₂ o ₇ " <i>Journal of Inorganic & Nuclear Chemistry</i> 41, 602-605	
	65	Dewaal, D. et al. (1994) "Vibrational-Spectra of a Solid-Solution of Cadmium and Calcium Pyrophosphate" <i>Materials Research Bulletin</i> 29, 1129-1135	
	66	Hezel, A. et al. (1967) "Vibrational Spectra of Some Divalent Metal Pyrophosphates" <i>SPECTROCHIMICA ACTA Part a-Molecular Spectroscopy</i> A 23, 1583	
	67	Pena, J. et al. (2003) "Hydroxyapatite, tricalcium phosphate and biphasic materials prepared by a liquid mix technique" <i>Journal of the European Ceramic Society</i> 23, 1687-1696	
	68	Rigby, S. P. et al. (2004) "Characterisation of porous solids using integrated nitrogen sorption and mercury porosimetry" <i>Chemical Engineering Science</i> 59(1): 41-51	
	69	W. J. Stark, et al. (2002) Aerosol flame reactors for manufacture of nanoparticles. <i>Powder Technol.</i> , 126, 103-108	

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